

Research:

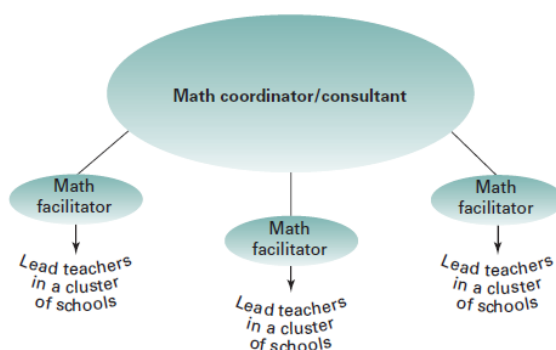
Mathematics Facilitators

*We recommend that additional support be offered by the creation of **mathematics facilitators** in each board to support the ongoing learning of both primary and junior mathematics teachers. These facilitators would support lead mathematics teachers within a cluster of schools. They would be individuals who have demonstrated their expertise in mathematics teaching, who are willing to continue their learning through additional training, and who are prepared to assist their colleagues to deepen their knowledge and skills in math instruction.*

Math facilitators will require sufficient professional development at the beginning of their mandate to reinforce the integration of research-based strategies into their practice.

They will also need to explore strategies to help them be successful in collaborating and sharing with other colleagues. Wherever possible, mathematics facilitators should continue to practise in their own mathematics classrooms.

Sustainable Professional Development Model in Mathematics



Teaching & Learning Mathematics: The Report of the Expert Panel on Mathematics in Grades 4 to 6 (2004)

Practice:

The mathematics coordinator and consultants in the York District School Board have focused their work on building a sustainable model for improved classroom instruction in mathematics by working to contextualize and implement the Mathematics Facilitators Model as outlined in Ministry's Expert Panel Report, *Teaching & Learning Mathematics* (2004).

Consultants work closely with selected classroom teachers from JK to Grade 12 using a coaching and co-teaching process, to develop their mathematics leadership capacities. This model is designed to build the facilitators' mathematics content knowledge and pedagogical knowledge, as well as develop their coaching capacities so they may support teams of teachers within their networks.

Classroom teachers access the expertise of the facilitators through the following processes:

- pre-arranged classroom visits to **Learning Centre Classrooms** with a facilitated debrief (K-12)
- participation in **mChat** sessions, an ongoing grade-based mathematics learning network (K-12)
- Participation in the **Mathematics Assessment for Learning Project** (Cross Panel: 7-10)

Mathematics Assessment for Learning Project: York Region District School Board

Full day sessions are facilitated by consultants and involve initial, separate clusters of elementary and secondary schools ranging from 2 to 5 schools per cluster. As the year progresses, clusters will merge into cross panel hubs, with the result being the creation of learning teams comprised of 1 secondary school and 2 to 6 elementary schools. Listed below is a sample Math AFL session facilitator's guide:

Planning Stages

CO-PLANNING (approx 2 hours)

1. **Welcome Back and Record of Learning Debrief –**
 - a. Artifacts from last Record of Learning (lettered heads – 3 or 4 groups, Aha's to share with whole group)
 - b. Successes and Challenges
 - c. Session Learning Goals [Record of Learning #]
 - d. Parking Lot
 - e. Revisiting our Success Criteria for Effective Mathematics Instruction and Assessment for Learning
2. **Classroom Context(s) -**
 - a. Class size, grade, previous learning, accommodations/modifications based on IEP, stages of language acquisition, growth plans
 - b. Unit /Topic /Lesson
 - c. What additional info/questions do we need/have?
3. **Big Ideas → Curriculum documents –**
 - a. What is the overall/specific expectation? [Web out from the expectation]
 - b. What are the mathematical 'big ideas' that this expectations is linked to?
 - c. What do students need to be able to know and do? [T-chart Activity]
 - d. What do we want students to know/understand by the end of the lesson? (Learning Goal)
4. **Problem/Task –** (numbered heads 1-5 for individual solving of the problem and then ideas to share with numbered group)
 - a. Decide on the problem.
 - b. Do the problem and generate potential solutions.
 - c. List the strategies and anticipated responses.
 - d. Identify potential misconceptions.
 - e. Develop the potential success criteria – What do all the solutions have in common regardless of the strategy?
 - f. What questions will we ask to prompt student thinking or further the learning? How do these connect to our learning goal?
 - g. What questions or strategies will we having 'in our back pocket' to support students that struggle in getting started?
 - h. How does this problem support the development of our learning goal?
 - i. How will we provide and document ongoing support based on formative assessment data?
5. What elements will we be looking for in the student work for congress to support the learning goal? How will the highlights support the learning goal?

6. Lesson Logistics -

- a. How are we going to activate prior knowledge?
- b. What opportunities are there for students to extend their learning in the task?
- c. What opportunities are there, during the lesson, for students to self or peer-assess their work in relation to the learning goal(s) and success criteria. [There may be more than one learning goal i.e., process & content].
- d. Consider student grouping/seating plan, questions, photocopies, supplies for students, etc)
- e. Review roles prior to lesson: co-teachers, insiders and outsiders.

7. CO-TEACHING (approx 45 minutes)

- a. Part 1 and 2 of 3 part lesson
- b. Collect student work for co-planning discussion

8. DEBRIEF AND CO-PLAN for Consolidation (approx 40 minutes)

- a. Discussion and selection of student work for Consolidation (2 posters)
- b. How does the student work support the learning goal?
- c. What questions will we ask students to support the group to understand the learning goal?

9. CO-TEACH part 3 of 3-part lesson – (approx 30 minutes)

10. CO-DEBRIEF Congress (approx. 20 minutes)

- a. How did we achieve or not achieve our learning goals for students?
- b. What would be next steps for the classroom teacher?

11. CO-DEBRIEF the Lesson (approx. 30 minutes)

- a. Reflection on the planning process
- b. What elements of Assessment for Learning did we experience or observe through our planning process or through the lesson?
- c. What questions do we still have?
- d. Record of Learning - reflection on personal goals set at the beginning of the session

12. Administrative details for next visit



Curriculum Implementation Goal: Delivering assessment-based instruction that is differentiated to intentionally support the strengths, needs and interests of each student to improve student achievement and success in all subjects and programs.

mChat

(an opportunity to continue the conversation in math)

Participants will have the opportunity to engage in professional conversations about teaching through problem solving facilitated by teachers in their classrooms.



In joining one of these sessions participants will:

- ❖ become part of an ongoing professional learning community which focuses on teaching through problem solving;
- ❖ explore specific questions that arise through group conversation; and
- ❖ gain a deeper understanding of how assessment drives the inquiry process.

Please choose a location and division that suits your needs. It is not necessary to have attended previous sessions in order to participate in any of these sessions.

Session times: 4:00-5:30 pm

Grade	mCHAT Facilitator	Location	Session 2 Dates
Grade K-2	Aynsley Maxwell	Bond Lake P.S.	Jan. 12
Grade 1	Stacia Snow	Fairwood P.S.	Jan. 27
Grade 3	Nada Aoudeh	Carrville Mills P.S.	Jan. 31
Grade 3-4	Heather Minielly	Aurora Heights P.S.	Jan. 25
Grade 5 & 7	Nadia Mackinnon	Teston Village P.S.	Jan. 25
Grade 8	Lainie Holmes	Reesor Park P.S.	Jan. 5
Grade 9-12	Kathryn Stewart	Huron Heights S.S.	Feb. 8